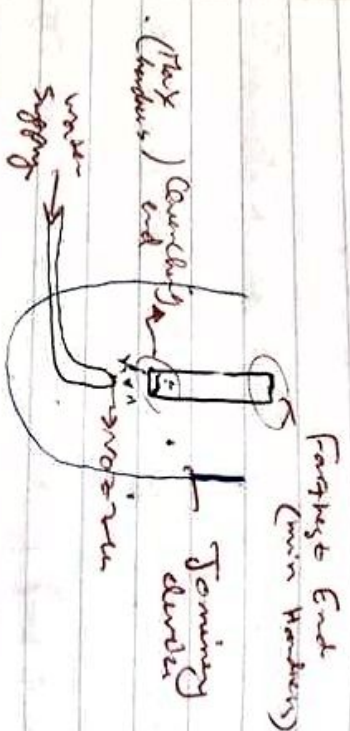


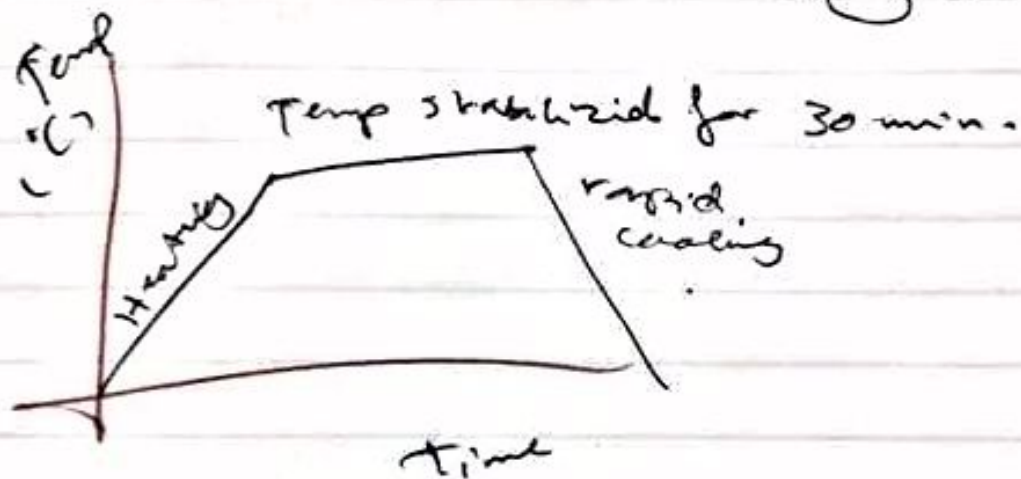
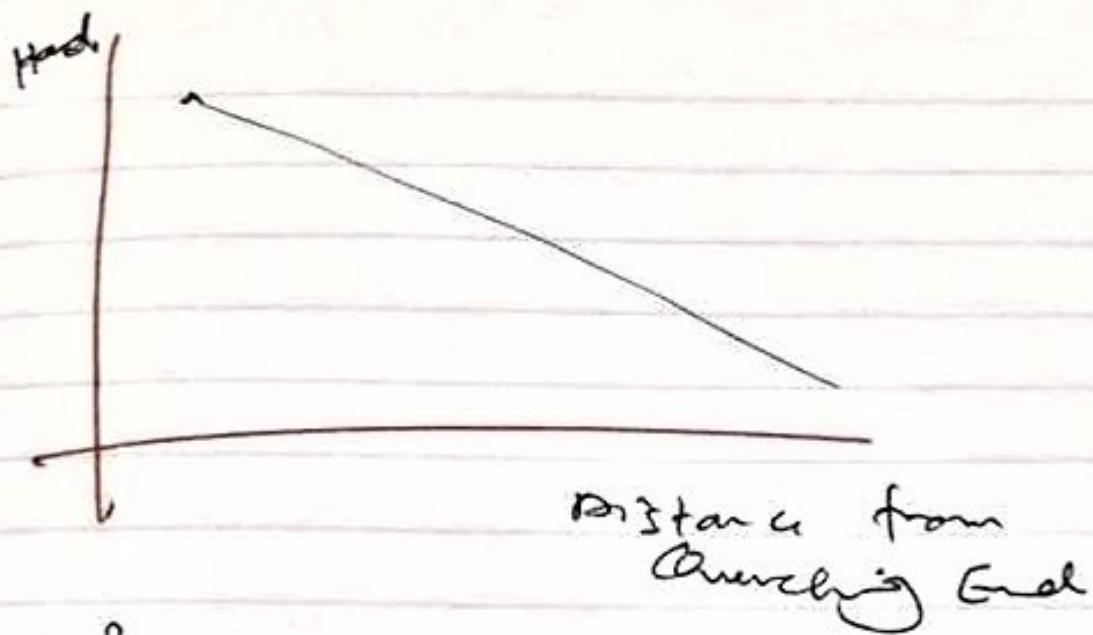
# Hardability Test Exp. 8. (Jominy End Quench test)

Hardness: Resistance to scratching

Hardability: Measure the depth to which the specimen may be hardened.



by quenching it from a temp above  $A_{cc}$  (upper critical limit).  
superheat  $727^{\circ}C$



(2)

Exp 10 Pack Carburising (Surface hardening of steel)

2) Process of Increasing Surface Hardness of low carbon steel by increasing Carbon composition as this

(T) Temp 900 - 1750

(t). Time 4-10 hrs,

- 0.5 m/s

1) Speeding & process  
2) Fractionally diffused

Exp #10: Surface hardening of steel (pack carburizing)

\* procedures:

- \* Procedures:
- 1) Clean the surface from any Contaminant

② Calculate  $\sigma$ ,  $\sigma_{HN}$ .

③ put the low carbon steel in the steel box with charcoal & car bonate

④ Close the stool box with clay.

⑤ put the steel bar in the furnace of  $900^{\circ}\text{C}$  for 4-6 h

⑥ Quenching in water

⑦ VAN



Reaction

- 1)  $\text{charcoal} + \text{CaCO}_3 \xrightarrow{\text{BaCO}_3}$
- 2)  $\text{C} + \text{CO}_2 \rightarrow 2\text{CO}$
- 3)  $3\text{Fe} + 2\text{CO} \rightarrow \text{Fe}_3\text{C}$

Carbon atom goes from 4 to 1  
Iron atom changes from 4 to 1  
Carbon atom stays 4  
During solution

Modality: Solid → Gas → Liquid  
Cancer → Chemotherapy



Gears  
Wear & Rubbing  
5 ticks plus  
→ Wear loss